

## Reviews and Bibliographical Notices.

### I.—HERBERT SPENCER: PSYCHOLOGY.

(Continued from January No., 1877, p. 140.)

THE PRINCIPLES OF PSYCHOLOGY. BY HERBERT SPENCER.  
2 Vols. 1876.

After the rather remarkable attempt to show the mode of "genesis" of a simple nervous system, which was discussed at some length in our preceding number, Mr. Spencer begins the simple, though not easy task of showing the mode of "genesis of compound nervous systems." After a short reference to the apparent fact, that the production of pigment in the dermal structures of various living beings, is at least partly due to the action of light, Mr. Spencer proceeds to show, how the organs of vision are produced. He says, "the rudimentary eye consists of a few pigment-grains, under the outermost dermal layer, and hence we may infer that rudimentary vision is constituted by the wave of disturbance which a sudden change in the states of these pigment-grains propagates through the body." (P. 532.) Now, what is there to justify such an inference?

There is absolutely no legitimate warrant for it. But this is only one from among hundreds of instances, in Mr. Spencer's works, where important steps are taken, or positions assumed, apparently without a consciousness of the illegitimacy of the procedure.

But to continue. "How such pigment-grains become concentrated in the particular place they may most advantageously occupy, we need not consider at length. Other things being equal, they will develop most where most light falls, and where, consequently, variations of light, caused by adjacent things, are strongest; and since a close cluster of pigment-grains, when affected, will send through the body a more efficient wave of disturbance, *natural selection will further the concentration*—there will be a survival of individuals, in which the approximation is greatest, ending in the formation of an integrated patch. The pre-existence of a simple nervous system

being *assumed*, let us consider what will happen when incipient vision is added." (P. 533).

Will the reader kindly follow us for a moment in a scrutiny of this statement?

"Incipient vision " is assumed, as well as a "simple nervous system," to which latter, visual impressions are to make their way, from the "pigment-grains," which constitute the rudimentary eye. Though it may be a fact that pigment-grains "will develop most where most light falls," yet that the necessary parallel fact, that, in consequence of there being more pigment in the site of the rudimentary eye than elsewhere, in the same proportion, more light must have fallen on that part than on others, is not only not established in any case, but wholly improbable, and, indeed, incapable of proof, must be remembered. This latter fact, so quietly assumed, stands in a causal relation to the former, and hence has precedence in order of time, and in that of a true logical sequence. The fact which is mentioned, depends on the fact that is assumed, and which is not only assumed but improbable. No one can be permitted, in behalf of Mr. Spencer, to evade this point, by replying that the accumulation of the pigment-grains at the seat of rudimentary vision depends on "other things," as well as the stimulus of light, in the absence of *proof* that anything else was concerned in the matter. Such a course involves a logical subterfuge unworthy of the name of sound reasoning.

But admitting these prior assumptions, what proof is there that when light falls upon the accumulation of pigment-grains, it will "send through the body" a "wave of disturbance," presumably along the track of future visual impulses? We have no hesitation in declaring that there is not a single fact which even gives strong indirect support to this assumption. Finally, having got over all the difficulties in the way of the original acquisition of the rudimentary eye, in the manner shown, what evidence is there to show that "natural selection *will further the concentration*" of granules, &c., which lead gradually, by a survival of the fittest, to the development of a perfect eye? There is none. But before passing on, we desire to offer a few remarks on the true office of "natural selection."

The word selection always signifies a choice, between alternatives. It implies always two or more things, one of which, for example, is, for some reason, *selected* in preference to another. If we speak of a selection from among plants or animals, it is indisputably implied that there are *two or more kinds*, from which aggregate a selection is made. The ordinary plain meaning of the term is not impaired by reason of any peculiarity of the agent or means for making the selection. For example, because it is called *natural*, it does not cease to be selection. By this it is meant, that those plants and animals, which are best fitted by their peculiarities of size, strength, endurance, &c., to live, under the common circumstances of their lives, will stand

the best chance, in the long run, to survive and propagate their kind, while others, less fortunate, in the particulars named, are placed at a disadvantage, and sooner or later perish. This so-called principle may enable us to explain why one kind has survived, while another has perished. But it seems to be overlooked too often by those who discuss the subject, that this case does not touch the vital point of inquiry. The real point is to explain how the same kind or class of beings came to be individually so different, that a selection is made possible? Selection did not *create* the differences or individual peculiarities, which alone render it possible. It can choose, as it were, between them, when they have been produced, but it would be absurd to declare that the differences *were produced* by natural, or any other kind of selection. Now, what is it that *produces*,—not *chooses*, or even *perpetuates*,—the differences between plants or animals, differences which render some more, others less, fitted to live under certain circumstances?

Before selection can appear on the scene, all the real difficulties of the case have been surmounted. But how? By a mere assumption. For we find on every page of the writings of certain authors, that "natural selection," "produces," "creates," "forms," etc., for example *an eye*. By all means let the reader, however familiar he may be with such topics, pause and reflect, and see whether he can be satisfied that natural or any other kind of *selection* has anything whatever to do in *producing* the differences between animals, or between plants, after the appearance of which alone selection can come into play. This whole passage, concerning the mode of development of the organs of vision, is simply a tissue of ingenious but almost valueless assumptions. And the same judgment must be passed on much that is contained in the chapters on the genesis of "compound" and "doubly-compound" nervous systems. It is true that they contain many ingenious speculations, rather than facts, in regard to the inner development of the central nervous system, but they are without either practical or scientific value, so far as we can see. Mr. Spencer himself appears to be fully aware of the character of that part of his work under discussion. He says, "in seeking to build up a general conception of the process of nervous evolution, in its higher stages, I have elaborated the argument quite far enough perhaps too far. Let me, indeed, disclaim the endeavor, which some may suppose I am making, to explain the process in full. My purpose has been rather to make the possibility of such a process conceivable, and I have taken specific cases and used concrete language, because so only could I make myself understood. The actual genesis has been much more involved than that which I have described—so involved that a *true delineation*, even if it could be made, would be scarcely comprehensible." (P. 557).

These latter admissions are certainly true. But if so, why

occupy so much space and consume so much time, in trying to do what cannot be done at least, in the present state of our knowledge? What we object to in general, in Mr. Spencer's work, from beginning to end, is the extraordinary preponderance of hypothesis, or assumption over fact, and cautious reasonings on the same. And for ourselves, we cannot be misled in our endeavor to estimate the true value of such work, by any plea, in behalf of the place and function of speculation in the course of science. Its true use is a different thing from its habitual abuse, and when comprehensively surveyed, it must be alleged against the writings of Mr. Spencer, as we have said before, that in his use of hypothesis he habitually trespasses on the grounds forbidden to legitimate inference.

The cerebellum is described in general terms, as an organ for "doubly-compound co-ordination" of space-relations, and the cerebrum as an organ for the "doubly compound co-ordination" of time-relations.

What is the meaning of these phrases? By co-ordination is meant, of course, in this case, the simultaneous and equal appreciation of various relations, not only those which happen in the same place and time, but in the past, taken in connection with the present. One object is recognized in its space-relations, or event in its time-relations, as regards other positions in space, and other periods in time past, or even to come.

According to Mr. Spencer, not only is each half of the brain, the seat of appreciation if we may so speak, of these compound relations, but each half has perfectly similar functions, and hence the action of the brain is not only "compound," but "doubly-compound." But can we by judicious analysis, subordinate all the functions of the cerebellum to the category of "space-relations," and those of the cerebrum to that of "time-relations?" For ourselves, we unhesitatingly say no. In this case we have conspicuously shown Mr. Spencer's loss of balance as between *quantitative* and *qualitative* relations, and on the side of the former. It is seen everywhere in his writings. There is a dominating tendency in his analytic procedure to reduce everything to terms of matter and motion, even within the most interior domains of biology and psychology. Certain it is that the synthetical summaries of the cerebellar and cerebral functions, made by Mr. Spencer, will not endure the test of even a superficial analysis, in the presence of the facts of the case. But we cannot in this place do more than challenge the adequacy of his generalizations in relation to the functions of the higher parts of the nervous system.

But in chapter VI. Mr. Spencer descends in detail, to a description of the mental functions of the nervous system. To this chapter we will now direct the attention of the reader.

Reflex action affords the starting point in the exposition. This is carried up from simple to complex reflexes. But as valuable a discovery as that of reflex action in nerve physiology

has been, its utility is habitually over-estimated. By its faithful application, very many phenomena have been and may be explained, that were formerly supposed to belong to a different category. But it should be remembered always, that reflex nervous actions, however complex they may be, are made up of an aggregation of simple reflexes, which may be brought to light by judicious analysis. The sphere or prerogatives of reflex action, are not enlarged by mere numerical, or serial complications, for it does not cease by such procedures to be reflex action. All there is in it, is seen essentially in its simplest manifestations. These remarks are none the less true, when it is admitted, that all parts of the nervous system may be the seat of reflex action—the cortex cerebri, as well as the spinal cord. For it is one thing to admit its general prevalence throughout the nervous system, and it is quite another, to declare that it excludes other kinds of action, in a part, which is its seat.

These remarks are made, not so much in view of Mr. Spencer's mode of treating this subject, as in view of a very general tendency among physiologists, in discussing the functions of the nervous system, to transcend the legitimate sphere of reflex action, in their applications of it to the same.

BUT to pass on. In the endeavor to establish the true relations of mental faculties and structure, in the higher parts of the nervous system, Mr. Spencer uses the following language:

"Every mental faculty, rightly understood, is an internal plexus of nervous connexions corresponding to some plexus of relations among external phenomena that are habitually experienced." (P. 574.) The former is developed in any particular case, according to Mr. Spencer, wholly at the instance of the latter, except in so far as they may have been acquired by heredity. But if we should ask how the ancestors of any given being came by the nervous mechanisms they have, and inquire far enough back, along the line of descent, we will find that they were produced wholly by the play of external stimuli upon the original "colloid" or protoplasm. All internal changes in structure, when hunted down to their ultimate causes, were *produced* by external physical agencies, and when once produced they have been faithfully transmitted by heredity, if encouraged by favoring external circumstances. But this matter of heredity, itself, is nothing but another result of the action of external physical agencies. Because if the peculiarity evoked in an organism, by a certain set of external agencies, meets with adverse external circumstances, then it simply is repressed or perishes, to give way to another peculiarity to which the existing external influences may be more friendly.

These may be said to be the two capital features of Mr. Spencer's system of psychology, viz.: The original acquisition of all nervous structure, by the play of outer physical agencies, at first upon a structureless creature, and the subsequent perfection of the same in the course of untold periods in time, and

by numberless changes in external relations, aided by the principle of heredity. These two principles, which involve also, the law of the "survival of the fittest," furnish the clues to Mr. Spencer's system. We shall presently examine these generalizations briefly, and hence for the time dismiss them. They are called up at present, to enable us the more readily to comprehend the statement, which we are now to pass under review.

In psychology, one of the chief subjects for discussion, is that process, by means of which in its totality, we obtain our knowledge of what is called the "outer world." No subject within its domain has given rise to more discussion. Now what is perception, according to Mr. Spencer? says he:

"Suppose such an animal as we have been considering, sees approaching some small creature of the kind on which it preys. Then, while this small creature is coming nearer, but before it has reached the point at which its *visual image arouses the reflex action that effects its seizure*, a series of visual images, increasing in size and definiteness, must be yielded by it, and it must yield an accompanying series of stimuli to the eye-muscles. Though the reflex action takes place only when the retinal and muscular impressions become combined in a certain way, yet during approach to the required combination, the reflex action is tending to arise, there is a gradually-increasing excitement of the nervo-motor apparatus, which will presently perform reflex action. The effect does not stop here. Through the established connexions there is propagated a gradually-increasing excitement of the nervo-motor apparatus which catching the prey will bring into play—there are produced faint revivals of the tactual and gustatory states which capture of such prey has on past occasions yielded. Thus then results, what we call *perception*; [perception] for we have here a cluster of real feelings caused by the presented object, joined with a cluster of ideal feelings, representing certain other real feeling which the object has before produced, and can again produce." (P. 561.) Or again, "a perception is formed only when a cluster of real feelings excites a correlated cluster of ideal feelings." (P. 563.)

Here it will be noted by the reader, that the same remarkable fondness for assumptions is displayed that we have discussed at length, elsewhere. We do not forget that Mr. Spencer is introducing examples such as we have quoted, largely for purposes of illustration, nor that in this volume, he is dealing professedly with "objective psychology." But can it be shown, has it ever been shown, that the catching of a mouse, say by a cat, is *simply a reflex action*, only this and nothing more, as Mr. Spencer more than implies in the passage quoted? Does *perception*, imply anything beyond reflex action?

On all hands, it is admitted to imply feeling, which, in its ordinary sense, at least, is not involved in simple reflex action, though it may be, as it is in that class of reflexes, known to some as "sensori-motor." But does not perception imply more than *mere feeling*, or simple apprehension of some particular condition of the sensory nervous apparatus? According to Mr. Spencer's account, a perception is composed as follows: "We have," says he, speaking of perception, "a cluster of real feelings, caused by the presented object, joined with a cluster of ideal feelings, representing certain other real feelings, which the object has before produced, and can produce again."

Nothing but "feelings," are found in this catalogue of the component elements of perception.

To group feelings into clusters, does not make of them anything but feelings. It is hardly possible under the circumstances, to suppose a sort of chemical combination among them so as to obtain by their combination a compound, as we may in chemistry, having qualities or properties different from what the elements entering into it seemed to have before they were combined. Though a member of an assumed "cluster," each separate feeling retains its characteristics, much the same as if it existed alone, though there are some apparent, rather than real, exceptions to this statement. But by what means are these "clusters of feelings" formed? By "co-ordinating plexuses," according to Mr. Spencer. We will shortly consider the idea of "co-ordinating plexuses," which, we believe, on anatomical and physiological grounds to be well founded, but to be, to some extent, illegitimately used by our author.

We know, perhaps, quite as well as we need to know, of the great difficulty, not to say, impossibility, which lies in the way of drawing a satisfactory distinction between *feeling* and *knowing*, or knowledge. It may, perhaps, be truly said that it is not possible to know without feeling, though we should greatly hesitate to declare that it is impossible to feel without knowing. But it would hardly seem to be a question with Mr. Spencer. It is feeling from first to last, the differences being those of number and complexity of grouping. Knowing is simply a more refined and complex form of feeling. There is no real distinction, except for figurative purposes, between feeling and thought. At any rate, this is the impression very naturally gathered by a perusal of his writings.

For our own part, we maintain a distinction is to be made, as between thought and feeling, closely as they are related in experience, and that both these elements enter into perception, and hence that it is inadequately treated, and that the process is not faithfully delineated by Mr. Spencer, in any part of his writing. But we are not able to treat this subject in the present notice as it deserves to be, but hope to do so, in the near future, in a work on the "Philosophy of Perception."

But, says Mr. Spencer, "we may now pass from perceptions to ideas properly so called. Though every true perception, along with the presentative feelings, necessarily contains certain representative feelings, these do not, at first, become what are usually understood by ideas. *They have not the detachableness* which distinguishes ideas that are fully developed. \* \* \* \* When do ideas, rightly so-called, arise? *They arise when compound co-ordination, passes into doubly compound co-ordination,* \* \* \* \* They are the necessary concomitants of that process by which thorough intercalated psychical states, there is established a mediate relation between psychical states that can not be brought into immediate relation. And they have for

their seat those intercalated plexuses, which co-ordinate the co-ordinating plexuses previously existing." (P. 565.) We begin with simple sense impressions, and simple reflex action. Then we advance a step higher, to another class of centres, or "plexuses," which are capable of taking up into themselves the primary impressions made on the lowest class of plexuses. This second class of "plexuses" co-ordinate and combine simple sense impressions. The impressions made on this second order of plexuses is transmitted to a higher set of plexuses, where they, too, are co-ordinated. This is "compound co-ordination," as the former was "simple." This "compound co-ordination" it is, which yields "perception." Next in order, if not finally, we have a still higher class of "co-ordinating plexuses," which work up the result arrived at in "compound co-ordination," and this is "doubly-compound co-ordination," and the result is *ideas*.

But what is an *emotion*? "The plexuses which co-ordinate the visual impressions yielded by an apple on the table, with the motor act, required to grasp it, and with the ideas of tactual and gustatory sensations it will yield, are nearly the same as certain plexuses that have before worked together. \* \* \* \* Each plexus has been inherited in the form of a well-organized set of connexions, obscured by multitudinous feeble connexions, and the inherited central connexions of the plexus first excited, are definitely connected with the inherited central connexions of the similarly constructed plexus that is habitually excited after it. The accompanying subjective results are these: The consciousness of an approaching body, making sounds and motions of a certain kind, is followed by a consciousness of painful states, sensory and motor, having no definite localizations. The immediate perception, with the crowd of ideas, resulting from preceding similar perceptions, arouses not only ideas of particular pains that have followed such perceptions in the life of the individual, but through the inherited organization it arouses an indefinite sense of ill—a cloud of dim feelings of suffering that cannot be reduced to form, because they have not been experienced—the *emotion of fear*. And with the primitive form of fear, thus physically organized and psychically constituted, there are afterwards integrated the higher and more involved forms of fear; all of which have for their central element, ideal feelings of pain or discomfort that are unlocalizable, and therefore vague.

Respecting emotions, it has only to be added that they, like ideas, result from the co-ordinating actions of the cerebrum and cerebellum upon the *medulla oblongata and the structures it presides over*. \* \* \* \* *The medulla being the seat of all feelings, whether aroused from within or without, etc.*" (P. 571-2.)

From the foregoing extracts and considerations, the reader may see what are Mr. Spencer's views as to the real nature of such mental states and products, as perceptions, ideas, emotions, etc.,—from a physiological standpoint.

But we will postpone remarks on the adequacy of Mr. Spen-



cer's interpretation of psychological phenomena from the physiological point of view, until we have what are his interpretations of the same phenomena from psychological points of view, to which we are soon to pass briefly,

Before leaving the physiological side of our subject, we desire to offer a few remarks, on the notion that the medulla is the common seat of feeling and emotion. A few eminent physiologists have held to this view, and as we have seen, it is adopted by Mr. Spencer. It is supported by the high authority of M. Vulpian. This opinion was discussed, to some extent, in our last number, in a review of Professor Ferrier's book, the "Functions of the Brain." We cannot do more at present, than to express a certain degree of surprise, that it should be seriously maintained, in the present state of our knowledge, that the *medulla oblongata* is the seat of the emotions, or the highest forms of feeling. The cerebral cortex, it seems to us, all the real evidence points to as their seat. We predict that the time is not far distant when but few, if any, will venture to maintain any other view. But we cannot, in this place, enter into an adequate discussion of this subject.

We desire, also, to call attention to a passage in regard to the localization of function in the brain, which will serve to show, as well as any other, the suggestiveness of many parts of Mr. Spencer's writings. It is as follows:

"Whoever," says he, "calmly considers the question, cannot long resist the conviction that different parts of the cerebrum must, *in some way or other*, subserve different laws of mental action. Localization of function is the *law of all organization whatever*, and it would be marvellous, were there here an exception. If it be admitted that the cerebral hemispheres are the seats of the higher psychical activities, if it be admitted that among these higher psychical activities there are distinctions of kind, which, though not definite, are yet practically recognizable, it cannot be denied, without going in direct opposition to established physiological principles, that these more or less distinct kinds of psychical activity must be carried on in more or less distinct parts of the cerebral hemispheres. To question this is to ignore the truths of neuro-physiology, as well as those of physiology in general. It is proved experimentally, that every bundle of nerve-fibres and every ganglion has a special duty, and that each part of every such bundle, and every such ganglion has a duty still more special. Can it be, then, that in the great hemispherical ganglia alone, this specialization of duty does not hold? That there are no conspicuous divisions here is true, but it is also true in other cases, where there are undeniable differences of function—instance the spinal cord, or one of the great nerve-bundles.

Just as there are aggregated together in a sciatic nerve, an immense number of fibres, each of which has a particular office, referring to some one part of the leg, but all of which have for their joint duty, the management of the leg as a whole; so, in any one region of the cerebrum, each fibre may be concluded to have some particular office, which, in common with the particular offices of many neighboring fibres, is merged in some general office fulfilled that region of the cerebrum.

Any other hypothesis seems to me, on the face of it, untenable. Either there is some arrangement, some organization, in the cerebrum, or there is none. If there is no organization, the cerebrum is a chaotic mass of fibres, incapable of performing any orderly action. If there is some

organization, it must consist in that same "physiological division on labor," in which all organization consists; and there is no division of labor, physiological or other, but what involves the concentration of special kinds of activity in special places. (P. 573-4.)

These statements we believe to be strictly true, and to have anticipated in a remarkable manner the best results of subsequent research into the anatomy and physiology of the brain. It is in striking contrast with the singular and seemingly chaotic doctrines in respect to the same subject, enunciated during the past few years by Dr. Brown-Sequard. But the subject of localization of function in the brain will receive rather extended notice in our next number in the concluding portion of our review of the work of Dr. Ferrier. To what is there to be said, we would invite the attention of the reader.

It will be hardly possible for us in our brief notice, to enter at greater length into Mr. Spencer's mode of treating psychological themes from a physiological point of view. Before we close we shall recur once again to this subject.

What are Mr. Spencer's doctrines in regard to the *nature* of mind? Does it have, substantially, a separate existence from the nervous organization, with which, if it is a separate entity, it is intimately associated during the continuance of corporeal life, or is it simply a name for the aggregate of the higher functions of the nervous system, as contraction is the name for the function of muscle? In speaking of the "composition of mind," it is said "the proximate components of mind are of two broadly-contrasted kinds—Feelings, and the Relations between feelings."

But what is a feeling? It "is any portion of consciousness which occupies a place sufficiently large to give it a *perceivable individuality*; which has its individuality marked off from *adjacent portions of consciousness*, by qualitative contrasts, and which, when introspectively contemplated, appears to be homogeneous. These are the essentials." (P. 164, vol. I.) The "relations" spoken of as the other class of ultimate components of mind, are but a sort of feeling, for it is said that "it is true that, under an ultimate analysis, what we call a relation proves to be *itself a kind of feeling*." In the final analysis, therefore, it appears that mind is "composed" solely of *feelings*. This is essentially the position of Hume, not to mention that of other members of the Lockean School.

One thing is quite noticeable in these and many similar statements,—the carrying of chemical and spatial conceptions into discussions of consciousness.

But to pass on from questions as to the "composition" of mind, what shall be said as to its "substance," its substantial independence of the nervous organism, which some regard as its instrument, during the corporeal life of the individual? Mr. Spencer devotes to this subject a rather remarkable chapter, and to some of the statements contained in it we invite the attention of the reader.

Mr. Spencer is a phenomenalist, apparently, of a rather pronounced type. In certain parts of the chapter on the "substance of mind," it is distinctly asserted that we know nothing of mind, and can know nothing of it. He says: "To write a chapter for the purpose of showing that nothing is known or can be known of the subject which the title of the chapter indicates, will be thought strange. It is, however, in this case needful," etc. (P. 145). It is the old story of the phenomenologists,—all we know is the phenomenon,—that which causes it, or gives it birth, we cannot know. Phenomena appear in the physical world, and they are referred to what we call matter, or within consciousness, and are referred to what we call mind, but it is the high office of certain forms of philosophy, overlooking the bases, and discrediting the value, of inference, to insist we do not, and can not know anything of either. They are radically inaccessible to our faculties. All we know, or can know, as Berkley declared in respect to matter, and Hume, for mind as well as matter, is our impressions and ideas,—only these and nothing more. And among the followers of Berkley and Hume, we may unhesitatingly range Mr. Spencer.

But here arises one of the many difficulties which stand in the way of a critical estimate of the value and tendencies of Mr. Spencer's labors.

It so often happens that what is said at one time is apparently conceded, or even contradicted, at another. In the chapter now under consideration—"The Substance of Mind"—he says: "*Mind* is, certainly in some cases, probably in all, *resolvable into nervous shocks*, and these nervous shocks answer to the waves of molecular motion that traverse nerves and nerve centres. Thus, not only is the substance of mind supposed to be knowable as having this universal character, but it is closely assimilated to, *if not identified with nervous shocks*." But after these and many other like declarations, Mr. Spencer writes in the same chapter as follows: "The foregoing reasoning brings us no nearer to a final solution of the question. Even could we succeed in proving that mind consists of homogenous units of feeling, of the nature specified, we should be unable to say what mind is. \* \* \* \* \*

The reduction of all the more complex forms to the simplest form, leaves us *with nothing but this simplest form*, out of which to form thought; and thought cannot be framed out of one term only. Representation and re-representation of this ultimate unit of consciousness, *in terms of itself*, leaves us at last just where we were at first. \* \* \*

When the two modes of being which we distinguish as Subject and Object, have been severally reduced to their lowest terms, any further comprehension must be an assimilation of these lowest terms to one another; and, as we have already seen, this is negatived by the very distinction of subject and object, which is itself the consciousness of a difference transcending all other differences. \* \* \* \* \* Can

we think of the subjective and objective activities as the same? Can the oscillation of a molecule be represented in consciousness side by side with a nervous shock, and the two be recognized as one? No effort enables us to assimilate them. That a unit of feeling has nothing in common with a unit of motion, becomes more than ever manifest when we bring the two into juxtaposition. And the immediate verdict of consciousness thus given, might be analytically justified were this a fit place for the needful analysis. \* \* \* \* \*

Here, indeed, we arrive at the barrier which needs to be perpetually pointed out, alike to those who seek materialistic explanations of mental phenomena, and to those who are alarmed lest such explanations may be found. The last class prove by their fear, almost as much as the first prove by their hope, that they believe mind may be possibly interpreted in terms of matter, whereas many whom they vituperate as materialists, are profoundly convinced that there is not the remotest possibility of so interpreting them. \* \* \* \* \*

It may be as well to say here, once for all, that were we compelled to choose between the alternatives of translating mental phenomena into physical phenomena, or of translating physical phenomena into mental phenomena, *the latter alternative would seem the more acceptable of the two*. Mind, as known to the possessor of it, is a circumscribed aggregate of activities, and the cohesion of these activities, one with another, throughout the aggregate, *compels the postulation of a something of which they are the activities.*" (P. 158-9, vol. I.)

These admissions are certainly remarkable when taken in connection with other deliberate statements of Mr. Spencer. For our own part, we fully agree with them. If we had to choose either of the alternatives mentioned to the exclusion of the other, we would certainly choose with Mr. Spencer. But we have never felt ourselves to be in the position which such a choice would imply.

We hold mental and physical phenomena to be at bottom of entirely different orders. They cannot by any legitimate, and hence rational procedure, be analyzed the one into the other, or both into some *tertium quid*, in which they may coalesce in substantial unity. It has never been done, and so far as we can see it never can be.

As to the proof of the existence of what has been called Mind, there is no direct evidence outside of the phenomena of consciousness if there is there. But when we consider in their completeness mental phenomena, we are compelled, as Mr. Spencer says, to the "postulation of a *something of which they are the activities*," at the point of a cogent inference, or series of inferences. The phenomena imperatively require some such agent or cause, as mind is said to be. And the kind of evidence which leads to this conclusion is just as valid, or may be, as is the so-called direct evidence. There is much to be learned yet, as to the real function and value of *Inference*, in the domain of the natural and physical sciences.

But though we know two groups of phenomena, "physical" and "mental," acknowledged to be radically distinct from each other, and though we seem to be compelled to postulate a pair of substantial entities, to which they respectively belong, yet it is held by Mr. Spencer in strict conformity to the dictates of phenomenalism, that we neither do nor can know anything of either. They are relegated to the "unknowable." This is exactly the position of Hume. Mr. Spencer not only feels "compelled" to admit an unknowable, substantial basis on the one hand for physical, and on the other for mental phenomena, but beyond these, a single form of "Unconditioned Being common to the two."

He says, "though of the two it seems easier to translate so-called matter into spirit, that to translate so-called spirit into matter, (which latter is indeed wholly impossible,) yet no translation can carry us beyond our symbols. Such vague conceptions as loom up before us are illusions conjured up by the wrong connotations of our words. The expression "substance of mind," if we use it in any other way than as the  $x$  of our equation, inevitably betrays us into errors, for we cannot think of substance save in terms that imply material properties. Our only course is to recognize our symbols as symbols only; and to rest content with *that duality of them which our constitution necessitates*. The unknowable, as manifested to us within the limits of consciousness in the shape of feeling, being no less inscrutable than the unknowable as manifested beyond the limits of consciousness in other shapes, we approach no nearer to understanding the last by rendering it into the first. The conditioned form under which being is presented in the subject, cannot, any more than the conditioned form under which being is presented in the object, be *the unconditioned being common to the two*." (P. 161-2, Vol. I.)

This not only puts the "substance of mind," and the "substance of matter," beyond the actual, or even the possible sphere, of human knowledge, but merges them into an unconditioned, and unknowable something that lies beyond, in the bottomless abyss of our absolute and everlasting ignorance. This is a stretch of philosophical humility, not to say candor, to which we have never yet been led, and we devoutly hope we may never be. Either there is some peculiar meaning given to the word "knowledge," which we do not fully comprehend, or we must, and we do contend, that we *know something* of matter, and *something* of mind. And we make this declaration in tolerably full view of the course and results of speculation concerning these subjects in the past. But we cannot, in this already long notice, do justice to such topics. But we expect to discuss them at length in a work which has occupied no small portion of our time and thought for many years past.

We have no time or space in this present notice, in which to examine in detail the remaining contents of these two goodly

volumes, and in which we have the nature and modes of action of the various mental faculties considered, often with wearisome minuteness of speculative detail, and in which the modes of acquiring our various forms of knowledge are exposed at length, in attempted conformity to the law of evolution, and by the aid of a highly refined and problematical *physics* of the nervous system, which latter point, however, we have considered at some length in the earlier part of this notice.

There are two capital features, amongst a few others, in Mr. Spencer's psychological system. They are,—first, that not only all changes toward complexity or perfection, but the original genesis of a nervous system, is dependent on *external physical agencies*, and their varying modes of action. The inner mechanism, and its action, are alike incidental to the action of such agents. The impulse to organization is originally from without. The forces set in play are from without. The "tendency to vary" is from without, since it depends in a final analysis of its conditions, on variations in *external causes*, as do the specific variations in structure and action of the nervous mechanism. Except in a secondary sense, nothing is from within. The internal structure is but an organized history of the action in space and time, of matters external and related to the animal organism.

The second feature to which we have alluded, is that of *heredity*. To this so-called principle is committed every change, actual or hypothetical, which rises into view in the course of a progressive evolution. And this in the face of the teachings of experience, that very many acquired peculiarities of structure, and hence of action, are not perceptibly transmissible. But neither of these features were originated by Mr. Spencer. They have been long familiar to those who have given themselves to the study of the phenomena of living beings.

Mr. Spencer has not established any important facts or laws in the province of nerve-physiology or psychology proper. But he has carried physical conceptions and quantitative relations, almost throughout the domain of both these sciences, as we must persist in calling them, and with results, which, in our judgment, are almost valueless, when compared with the labor expended in procuring them. Mr. Spencer's work, in this latter phase, differs from all its predecessors, in the thoroughness and minuteness of its elaboration. In his application of physical conceptions and a physical nomenclature to vital and mental processes, he does not content himself with generalities, but enters with remarkable particularity into his work. But after all, we are unable to point out to our readers any substantial results, of practical value, arising of Mr. Spencer's labors in the psychological field, except in the way of their suggestiveness. In this latter respect they are worthy of high praise.

---